

Volunteer 'Gardeners' Dig the Everglades

Living laboratory recreates biodiverse tree islands



Seedlings planted at this outdoor laboratory by the South Florida Water Management District will provide information about tree growth and survival in South Florida's wetlands. Scientists will use this information to improve water flow and timing during Everglades restoration.

four side-by-side marshes, called macrocosms. Each macrocosm has been sculpted to resemble the Everglades landscape, with wide and narrow paths for water flow, shallow and deep pools – including simulated alligator holes – and small rises of land called tree islands.

That's where the gardeners come in. Tree islands are an important part of LILA. In the natural Everglades, they provide some of the only dry land in the vast River of Grass. Many dozens of plant and animal species use tree islands for habitat, food and/or shelter. "Everglades tree islands are biodiversity hotspots," said Fred Sklar, Ph.D. chief scientist at the District and LILA's principle designer. "In a sense, they are like miniature tropical jungles."

Water levels strongly influence the specific types of plants, wildlife and even soils found on tree islands. Human impacts – such as urban and agricultural development, drainage for flood protection, and increased water use – have disrupted water flows in the Everglades,

including its wet and dry seasonal rhythms. Restoring historic water patterns is one of the primary goals of Everglades restoration. With LILA's electric pump and re-circulating water system, scientists can control flows and levels across the simulated landscape, evaluating specific restoration plans before applying them on a large scale.

PLANTING A TREE ISLAND

Over the course of three days, 3,200 tree seedlings of eight common Everglades species were planted on the tree islands, thanks to the 25 volunteers led by LILA Site Manager Eric Cline. Red maple, coco plum, pond apple, dahoon holly, buttonbush, wax myrtle, sweet bay and Carolina willow joined the grasses and other plants that sprouted after LILA's construction.

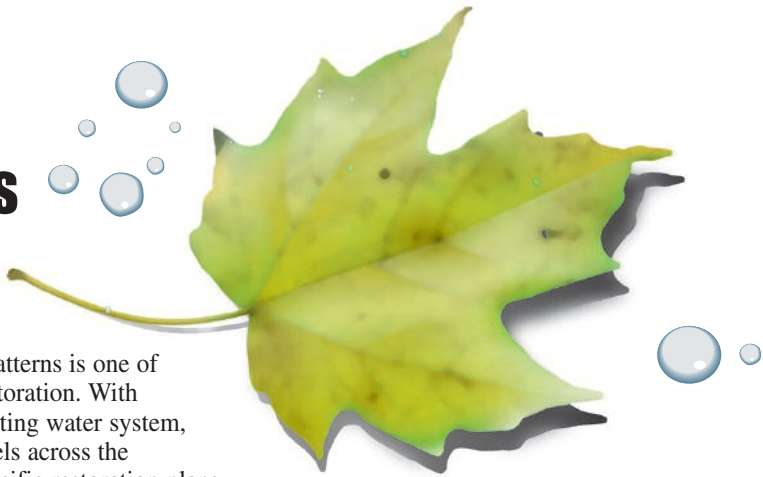
Because this is a living laboratory, the 10-inch seedlings were not just plunked into the ground wherever volunteers thought they might look attractive. Scientific goals, which include extensive monitoring, guided the



Even in a wetland environment, newly planted seedlings benefit from a long drink of water: Volunteer "gardeners" spent a few days in May planting and watering 3,200 young trees at the Loxahatchee Impoundment Landscape Assessment project.

planting effort. Like a meticulous gardener, Cline set out a specific grid pattern with wooden stakes and twine, even adding color-coded flags to mark each row.

Then the crews got to work. With 1.5-meter poles as spacing guides, they used bladed tools to form planting holes, strong hands to fill in dirt around the seedlings and big watering cans to give the plants a long drink. Any gardener knows the routine.



But most gardeners won't be studying their handiwork with satellites. In several years when the trees are much larger, satellite images of the LILA tree islands will provide a "signature" for each of the Everglades species growing there. Their distinct color and pattern – when viewed by satellite – will be used to locate and identify these trees in the vast Everglades environment.

A HEALTHY EVERGLADES

When completed next year, LILA will start providing scientists and water managers with essential information needed to restore and revitalize the Everglades – and to sustain its health once that is achieved. "LILA is unique in the world for its ability to evaluate the large-scale ecological effects of water flow and flooding," said Sklar. "By recreating the Everglades landscape in one controlled setting, we can explore ideas, test strategies and solve problems before putting specific projects into place during the restoration effort."

LILA is a proving ground of sorts, ultimately aimed at ensuring that Everglades restoration will be a success. It is also a planting ground, as the recent volunteers discovered. And they have the dirty fingernails and pink noses to show for it.

VISITING LILA

LILA is located at the Arthur R. Marshall Loxahatchee National Wildlife Refuge. A visitor's kiosk describes the LILA site in further detail, and a nearby observation platform provides an elevated view. To get to the Refuge, take Interstate 95 or Florida's Turnpike to central Palm Beach County, exiting at Boynton Beach Boulevard (State Road 804). Travel west to U.S. 441, turn left (south) and travel 2 miles to Lee Road. Turn right (west) and continue 0.3 miles into the Refuge's entrance and the visitor's center on the right.

Find Freddy!

Where in the District is Freddy?



CLUES:

- Freddy is being tapped for on-the-job training. He is learning to take readings from an instrument panel.
- The facility was built in 1955, and its operation is caused by rainfall.
- He is inside a huge structure – one of the world's largest of its kind.
- There are 49 structures like this in our District, mostly located where canals converge with water storage areas.
- When engines inside the building crank up, it is so noisy that if Freddy bellowed no one would hear him.

Give up?

The answer is on the back page.

EVERGLADES PROGRESS

• **LAKE TRAFFORD RESTORATION:** Taking the lead on this project, the District is moving forward with Lake Trafford Restoration. Tons of muck will be dredged from the lake and pumped along with lake water into holding ponds, where the muck will settle before the water goes back into the lake. The original project was modified to avoid affecting bald eagles, scrub jays and gopher tortoises.

• **TEN MILE CREEK CRITICAL RESTORATION PROJECT:** Ten Mile Creek is the largest sub-basin delivering water to the North Fork of the St. Lucie River Estuary, which discharges into the Indian River Lagoon. The District and the U.S. Army Corps of Engineers are making great progress on construction of the levee and excavation for structural features. As part of this effort, gopher tortoises were successfully relocated in early-June.

• **WESTERN C-11 WATER QUALITY IMPROVEMENT CRITICAL PROJECT:** Located in Broward County, the Western C-11 project will improve the quality and timing of stormwater discharges to the Everglades Protection Area. The project is in its last phase, which involves construction of a new divide structure in the C-11 canal. Construction is scheduled to be complete in early December.

• **NORTH PALM BEACH COUNTY – PART 1:** The L-8 Reservoir, one of six elements of this project, is scheduled for completion in 2008 – eight years ahead of schedule. When complete, water supplies to Grassy Waters Preserve and the Loxahatchee Slough will be increased, water levels in the Loxahatchee Slough will be enhanced, base flows in the Northwest Fork of the Loxahatchee River will be increased, and high freshwater discharges to the Lake Worth Lagoon will be reduced.

• **INDIAN RIVER LAGOON – SOUTH RESTORATION PROJECT:** This long-awaited project is now included in both the U.S. Senate and House's version of the Water Resource Development Act (WRDA). The plan includes natural area storage, reservoir storage, stormwater treatment areas and muck removal to improve water quality in the St. Lucie Estuary and Indian River Lagoon.

• **PICAYUNE STRAND RESTORATION PROJECT (SOUTHERN GOLDEN GATE ESTATES HYDROLOGIC RESTORATION PROJECT):** The name change for this project was included in the WRDA sent to the full Senate and reflects the goal of merging the area back with the Picayune Strand State Forest. The project is years ahead of schedule with about 1.5 miles of Prairie Canal filling now complete. Exotic plants are also being removed to speed the return of natural vegetation. When completed, this project will restore 50,000 acres of wetlands.